# A new species of the genus Limnophyes Eaton from S. E. England 

(Diptera, Chironomidae)

By P. D. Armitage

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Limnophyes paludis spec. nov. is described and illustrated from male imagines collected on the Isle of Sheppey, S. E. England. Characters distinguishing this species from others in the genus are discussed.
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A total of 47 species of Limnophyes are listed in Limnofauna Europaea (Frttixau \& Reiss, 1978). Two of these species, L. biverticillatus Rem. and L. virgo Rem., are known only as females. Of the remaining 45 species, 7 are listed from Great Britain. The studies of Pinder (1978) and Langton (1980) have added a further 4 species. On 29 March 1984 chironomid adults were sampled by sweeping vegetation at the margins of ponds and ditches in the Swale National Nature Reserve on the Isle of Sheppey, Kent (S. E. England). Amongst this material were four male imagines of the genus Limnophyes which could not be assigned to any of the currently described British species (Pinder, 1978). Further comparison of the specimens with descriptions provided in Goetghebuer (1940-1950), Brundin (1947) and Saether (1975) showed them to be a new species.

The descriptive terminology follows Saether (1980). The ranges for counts and measurements are followed by mean values in parentheses where appropriate.

## Limnophyes paludis spec. nov.

Material: Holotype ( $0^{1}$ imago): Isle of Sheppey, Swale National Nature Reserve, from emergent vegetation beside water bodies, 29 March 1984, coll. P. D. Armitage. Paratypes ( $30^{\prime \prime} O^{7}$ imagines), same data as holotype. Holotype slide-mounted in Dimethyl hydantoin formaldehyde resin; 2 paratypes slide-mounted in DMHF and one in Euparal. Holotype deposited in British Museum (Natural History); one paratype deposited in the Museum of Zoology, Bergen, Norway, remaining material retained in collections of Freshwater Biological Association.

Etymology: The specific name paludis refers to the occurrence of the species in a marshland area (Latin palus $=$ marsh).

Male imago ( $\mathrm{n}=4$ )
Colouration (alcohol preserved). Head and antennae dark brown to black. Thorax - scutum, shiny black with dorsocentral bristles arising from pale patches. Scutellum and postnotum dark brown. Legs dark brown. Wings greyish brown in reflected ligth and coarsely dotted with microtrichia, halteres dark brown. Abdomen dark brown. Total lenght 3.15-3.30, (3.24) mm. Wing length $1.87-1.95$, (1.93) mm . Wing width $0.50-0.54,(0.52) \mathrm{mm}$.


Fig. 1. Limnophyes paludis spec. nov.; prescutellar region of thorax showing lanceolate bristles.

Head: AR = 1.10-1.17, (1.14). 13 flagellomeres. Temporal setae 4-6, Postorbitals 1-3, outer verticals 1, inner verticals 1-2. Clypeus 14-17 setae. Palp lengths ( $\mu \mathrm{m}$ ):30-35, (32); 50-55, (53); 90-95, (92); 65-70, (68); 105-125, (117).

Thorax: (Fig. 1). Antepronotum with 1 median and 2-3 lateral setae. Acrostichals absent; dorsocentrals 26-29 including 2-4 humerals of which 2 are lanceolate, and 3-6 lanceolate prescutellars; prealars 5-7; post anepisternum II with 2-5 setae, anepimeron with 7-9 setae; preepisternum with 5-7 setae. Scutellum with 3-5 setae.

Wing: VR $=1.24-1.28$, (1.25). Free end of costa $105-125$, (114) $\mu \mathrm{m}$ long. Brachiolum with $1-2$ setae; $R$ with 7-16 setae, $R_{1}$ with $0-1$ setae; squama with $6-8$, (7) setae.

Legs: Spur of front tibia $60 \mu \mathrm{~m}$ long; longest spur of middle tibia $25 \mu \mathrm{~m}$; longest spur of hind tibia $55 \mu \mathrm{~m}$. Width at apex of front tibia 42-50, (44) $\mu \mathrm{m}$; of middle tibia $45 \mu \mathrm{~m}$; of hind tibia $50-55$, (51) $\mu \mathrm{m}$ Teeth in comb 11-12, (11.5). Lengths ( $\mu \mathrm{m}$ ) and proportions of legs:

|  | Fe | ti | $\mathrm{ta}_{1}$ | $\mathrm{ta}_{2}$ |
| :---: | :---: | :---: | :---: | :---: |
| p 1 | 700-750, (725) | 850-875, (869) | 450-475, (469) | 275-300, (287) |
| p 2 | 762-775, (772) | 763-812, (787) | 350-375, (356) | 195-200, (199) |
| $p^{3}$ | 775-800, (787) | 905-950, (932) | 475-525, (500) | 250-275, (262) |
|  | $\mathrm{ta}_{3}$ | $\mathrm{ta}_{4}$ | $\mathrm{ta}_{5}$ | LR |
| p 1 | 175-200, (187) | 100-105, (101) | 100-103, (101) | 0.53-0.54, (0.54) |
| $\mathrm{p}^{2}$ | 137-150, (144) | 75-80, ( 77) | 97-100, ( 99) | 0.43-0.46, (0.45) |
| p3 | 200-237, (219) | 87-100, ( 97) | 100-110, (103) | 0.50-0.55, (0.53) |

Hypopygium: (Fig. 2). Gonostylus robust with darkened dorsal edge, relatively wide and 'scoo-ped-out' internally in proximal half, narrowed distally without subapical spine. Anal point absent. Ninth tergum with 14-20, (16) setae. Laterosternite IX with 3-5, (4) setae. Transverse sternapodeme 92-97, (95) $\mu \mathrm{m}$ long. Phallapodeme 77-87, (84) $\mu \mathrm{m}$ long. Gonocoxite $170-185,(176) \mu \mathrm{m}$ long. $\mathrm{HR}=$ 1.40-1.54, (1.46).

Systematic position
15 of the species of Limnophyes listed by Fittiau \& Reiss (1978) have a male AR $>0.9$. Seven of these do not possess lanceolate setae on the scutum and the remaining 8 differ from the new species in colouration, shape of hypopygium and leg and antennal ratios. In Goetghebuer's (1940-1950) keys the new species is near $L$. squamatus Kieffer but it may be separated on its larger size, colouration, higher LR


Fig. 2. Limnophyes paludis spec. nov.; hypopygium of male, dorsal aspect.
and the presence of lanceolate bristles in both prescutellar and humeral regions. In L. squamatus lanceolate bristles are restricted to the prescutellar region. L. borealis Goetghebuer, which keys out in the same couplet as L. squamatus (Goetghebuer, 1940-1950), differs from L. paludis in the shape of the hypopygium (Oliver, 1962) and in the number and arrangement of dorsocentral bristles on the scutum.
L. paludis is characterised by its relatively large size ( 3.2 mm ), by having lanceolate bristles, and a gonostylus without a subapical spine, as in L. prolongatus Kieffer and L. gurgicola Edwards. It differs from these species in having an AR of 1.14 (cf. © 0.3 in L. gurgicola, $0.5-0.6$ in L. prolongatus).

Habitat and associated species
The Swale National Nature Reserve is an area of coastal grazing marsh intersected by many, mainly freshwater, ditches, though some can be slightly brackish. The chironomids were collected by sweeping emergent vegetation (Scirpus maritimus L., Juncusinflexus L. and Carex divisa Huds.) along the sides of the ditches which were about 3 m wide and with a mean depth of 1.5 m . Chironomid species occurring with L. paludis sp. n. in the samples were Chironomus lugubris Zetterstedt, Psectrocladius barbimanus (Edwards), Acricotopuslucens Zetterstedt, Limnophyespumilio (Holmgren) and an indeterminate Metriocnemus sp.

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